DIGITAL TECHNOLOGIES HUB

F–10 Scope and sequence overview

Foundation	**Ways we represent data** Represent data as symbols, numbers and pictures. Represent data collected about familiar experiences and events. Data representation AC9TDIFK02	**Using digital systems safely** Explore common digital systems and use them for a purpose. Explore ways to stay safe when using digital systems and learn about how to keep their personal information safe. Digital systems AC9TDIFK01 Data representation AC9TDIFK02 Privacy and security AC9TDIFP01	
Yr 1 -2	**Solving simple problems** Explore algorithms conceptualising algorithms as a sequence of steps or procedures for carrying out instructions to solve problems. Incorporate representing data as part of exploring algorithms. Investigating and defining AC9TDI2P01 Generating and designing AC9TDI2P02 Representing data AC9TDI2K02	**Ways we represent data** Represent data as symbols, numbers and pictures. Collect, sort and present data in a digital format. Representing data AC9TDI2K02	
	Using digital systems safely Introduce students to common digital systems and build an understanding of the role hardware and software play in transmitting data. Guide students to use applications as they use digital systems for a purpose and learn about being safe users of digital systems. Digital systems AC9TDI2K01 Privacy and security AC9TDI2P06, AC9TDI2P07 Evaluating AC9TDI2P03	**Sharing content and collaborating** Introduce students to using the basic features of common digital tools to share content and collaborate. Students learn about using appropriate behaviours when working with others and sharing content. They also access school computer systems safely. Collaborating and managing AC9TDI2P04, AC9TDI2P05 Privacy and security AC9TDI2P06	
Yr 3-4	**Introduction to programming** Follow and describe simple algorithms involving branching and iteration and implement them as visual programs. Generating and designing AC9TDI4P02 Producing and implementing AC9TDI4P04	**Using data purposefully** Explore how text, numbers, sound and images are transmitted between digital systems. Students explore symbols and images, and learn about the conventions of data representation. They apply their understanding by representing the same data in various ways. Digital systems AC9TDI4K01, AC9TDI4K02 Data representation AC9TDI4K03	
	Digital systems, safety and security Explore peripherals of common digital systems and their function. Students investigate behaviours and protocols to stay safe online. Using a supported and guided approach, introduce ways to collaborate and share content. Digital systems AC9TDI4K01, AC9TDI4K02 Collaborating and managing AC9TDI4P06, AC9TDI4P07 Privacy and security AC9TDI4P08, AC9TDI4P09	**Programming a simple digital solution** Identify user needs and co-develop a user story, and use this to design and implementation of a digital solution that includes sequencing, branching and iteration (repetition). Investigating and defining AC9TDI4P01 Generating and designing AC9TDI4P02, AC9TDI4P03 Producing and implementing AC9TDI4P04 Evaluating AC9TDI4P05	
Yr 5-6	**Representing data in digital systems** Explore binary numbers through pixel-based image creation to help students understand the purpose and functionality of binary. Introduce data types and explore how information is represented internally in digital systems and the operations that can be performed on it. Data representation AC9TDI6K03, AC9TDI6K04 Generating and designing AC9TDI6P02 Producing and implementing AC9TDI6P05	**Programming challenges** Use various programming challenges that incorporate branching, iteration (repetition) and variables. Generating and designing AC9TDI6P02 Producing and implementing AC9TDI6P05	**App design** Explore app design through a process of problem definition, prototyping and evaluation. Students explore concepts of user interface design, design criteria and user stories. They use visual programs including variables, input and control structures to produce an app. Investigating and defining AC9TDI6P01 Generating and designing AC9TDI6P02, AC9TDI6P03, AC9TDI6P04 Producing and implementing AC9TDI6P05 Evaluating AC9TDI6P06
	Digital systems, safety and security Explore the internal components of a digital device and their functions. Investigate computers connected via networks and demonstrate use of safe behaviours in a digital world. Digital systems AC9TDI6K01, AC9TDI6K02 Privacy and security AC9TDI6P09	**Designing a digital solution** Explore the user-centred design process through three different pathways that incorporate visual programming. Familiarise students with the design process and use of user stories to identify user needs. Choose one pathway that suits your students' needs, school context and available resources. Investigating and defining AC9TDI6P01 Generating and designing AC9TDI6P03, AC9TDI6P04 Evaluating AC9TDI6P06	**Collaborative project** Discuss agreed behaviours and protocols for collaborating safely online and foster awareness of their digital footprint. Use digital tools for collaborative work and task planning, and demonstrate agreed behaviours and protocols. Collaborating and managing AC9TDI6P07, AC9TDI6P08 Privacy and security AC9TDI6P10
Yr 7 -8	**Binary numbers** Explore the binary system of ones and zeros used by digital technologies to store and process numbers. Learn how text, images and sound can be stored this way. Introduce data types and explore how information is represented internally in digital systems and the operations that can be performed on it. Data representation AC9TDI8K03, AC9TDI8K04	**Working with data** Acquire, analyse and visualise data. Students acquire data from sources ranging from paper and digital surveys to electronic sensors and online data repositories. Spreadsheets and single-table databases can be used for data analysis and visualisation. At each stage, the digital footprint of data solutions is considered. Acquiring, managing and analysing data AC9TDI8P01, AC9TDI8P02, AC9TDI8P03 Privacy and security AC9TDI8P14	**General-purpose programming** Introduce skills and tools for designing and testing algorithms, building up to the use of nested control structures and functions. Students are also introduced to coding in a general-purpose programming language such as Python or JavaScript. Generating and designing AC9TDI8P05, AC9TDI8P06 Producing and implementing AC9TDI8P09
	Hardware, networks and cyber threats Explore how the performance of computer hardware – such as CPU and RAM – is determined by its specifications, and how digital networks (wired and wireless) can also be compared in terms of requirements. Students are introduced to the concepts of network protocols and cryptography to ensure data integrity and security, and learn to identify and mitigate cyber security threats such as phishing. Digital systems AC9TDI8K01, AC9TDI8K02 Privacy and security AC9TDI8P13	**Designing a digital solution** Provide an opportunity for students to apply the data-analysis skills from the 'Working with data' unit in the context of a digital solution designed, developed and evaluated collaboratively. Project management principles and skills are explicitly introduced, then three different option pathways provide contexts and ideas for student projects that involve the collection and analysis of data and the presentation of information. Investigating and defining AC9TDI8P04 Generating and designing AC9TDI8P08 Evaluating AC9TDI8P10 Collaborating and managing AC9TDI8P11, AC9TDI8P12	**Creating a digital solution** Provide an opportunity for students to apply the skills for understanding and implementing algorithms from the 'General-purpose programming' unit in the context of a design project. Design thinking methodology and user experience design are explicitly introduced, then three different option pathways provide contexts and ideas for student projects that involve programming and a user interface as part of the solution. Investigating and defining AC9TDI8P04 Generating and designing AC9TDI8P07, AC9TDI8P08 Evaluating AC9TDI8P10
Yr 9 -10	**Webpage design** Introduce students to key layers of webpage development that represent content, structure and presentation. Students develop simple webpages employing hypertext markup language (HTML) for the structure of webpage content, as well as Cascading Style Sheets (CSS) for styling. They explore aesthetics in modern webpage design, and accessibility for diverse audiences. Data representation AC9TDI10K02 Generating and designing AC9TDI10P07, AC9TDI10P05, AC9TDI10P06 Producing and implementing AC9TDI10P09 Collaborating and managing AC9TDI10P11	**Cyber security** Explore how and why data is kept secure on the internet. Students refresh and build on their understanding of network hardware and internet protocols. They examine the Australian Privacy Principles and their implications for individuals and organisations, providing a rationale to explore how cyber threats can be investigated, modelled and mitigated. Students also learn and practise specific techniques for encrypting and compressing, allowing it to be transmitted more securely and efficiently. Digital systems AC9TDI10K01 Data representation AC9TDI10K03 Privacy and security AC9TDI10P13, AC9TDI10P14	**Programming** Build on the algorithm design and general-purpose programming skills developed in years 7–8, continuing to use Python or JavaScript. Students practise using logical operators such as OR, NOT and AND in their algorithms. They employ formal validation in their code and use test cases to test it. They are introduced to data structures such as lists in their code implementation, and practise using debugging tools to step through and analyse their code. Explore the object-oriented approach for organising code. Generating and designing AC9TDI10P05, AC9TDI10P06 Producing and implementing AC9TDI10P09
	Data science skills Introduce data science as a process, focusing on specific skills used in data science. These include the acquisition of data from surveys, sensors or online repositories; storage and analysis of that data; and its visualisation, including with interactivity. When acquiring and analysing data, students can apply the Australian Privacy Principles. Acquiring, managing and analysing data AC9TDI10P01, AC9TDI10P02, AC9TDI10P03 Generating and designing AC9TDI10P07 Privacy and security AC9TDI10P14	**Student-driven project** Review and use the principles of design thinking and user experience design. Students follow one of two different pathways for their project: data investigation or software authoring. In concert with a design thinking process and explicit project management, they apply the skills from the Data science skills unit and/or the Programming unit in the design and development of their solution. Investigating and defining AC9TDI10P04 Generating and designing AC9TDI10P07, AC9TDI10P08 Evaluating AC9TDI10P10 Collaborating and managing AC9TDI10P11, AC9TDI10P12	